

Claim 29 was added. Chen neither teaches nor suggests the limitations of claim 29.

Claims 1-5 were rejected under 35 U.S.C. § 102(e) as being anticipated by Eichelberger (U.S. Patent No. 5,250,843). Claim 1 has been amended, including adding the limitation of cancelled claim 5. By the amendment of claim 1, the rejection is mooted. Chen neither teaches nor suggests the limitations of claims 1-4 as amended. Withdrawal of the rejection is respectfully requested.

Claim 29 was added. Eichelberger neither teaches nor suggests the limitations of claim 29.

Rejections Under 35 U.S.C. § 103

Claim 10 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Shen (U.S. Patent No. 6,368,894). The Applicants respectfully traverse this rejection and request the Office to consider the following.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaack, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (M.P.E.P. § 2143 7th Ed).

The Office Action mistakenly states "Shen discloses . . . where the package core second surface obvious abuts the heat sink" (Office Action, page 4, paragraph 5). The package core (substrate 1, FIG. 1) in Shen does not abut the heat sink (metal heat dissipating plate 33, FIG. 1). This characterization of Shen is in error. Because the rejection of claim 10 is a single-reference obviousness rejection, because "the prior art reference must teach or suggest all the

claim limitations” (In re Vaeck, *supra*), and because Shen fails to teach this limitation, withdrawal of the rejection is respectfully requested.

Claims 11-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Shen (U.S. Patent No. 6,368,894) in view of Eichelberger (U.S. Patent No. 5,250,843). The Applicants respectfully traverse this rejection and request the Office to consider the following.

Applicants note that claims 11-17 depend from claim 10. As set forth above, because withdrawal of the rejection of claim 10 over Shen is proper, withdrawal of the rejections of dependent claims 11-17 is also proper.

Regarding the combination of Shen and Eichelberger, Shen and Eichelberger cannot be combined because there is no location for Eichelberger’s structures 18, 20, 24, and 26 between Shen’s semiconductor chip 2 and second semiconductor chip 3. Therefore, the application of Eichelberger to Shen, destroys and renders impossible the structures taught by Shen. Any modification of Eichelberger’s structure to be accommodated by Shen can only come by using the Applicants’ disclosure as a guide because it is not found in the prior art. Withdrawal of the rejection is respectfully requested.

Regarding claim 12, although the Office Action asserts Eichelberger discloses the build up layer, as set forth above the importation of Eichelberger into Shen, destroys and renders impossible the structures taught by Shen. Because the combination of Eichelberger with Shen does not amount to the limitations of claim 12, withdrawal of the rejection is respectfully requested.

Regarding claim 13, although the Office Action asserts Eichelberger further includes at least one dielectric layer, as set forth above the importation of Eichelberger into Shen, destroys and renders impossible the structures taught by Shen. Because the combination of Eichelberger with Shen does not amount to the limitations of claim 13, withdrawal of the rejection is respectfully requested.

Regarding claim 14, although the Office Action asserts Shen discloses the encapsulation (34 and 24) covers the package core first surface, as set forth above the importation of Eichelberger into Shen, destroys and renders impossible the structures taught by Shen. Because

the combination of Eichelberger with Shen does not amount to the limitations of claim 14, withdrawal of the rejection is respectfully requested.

Regarding claim 15, the Office Action states it would have been an obvious matter of design choice to form a thickness of the package core is greater than a thickness of the die. Because neither Shen nor Eichelberger teach or suggest such a design choice, the motivation for such a teaching or modification comes from Applicants' disclosure, and not from the prior art. (In re Vaeck, *supra*). Because the motivation for such a teaching or modification comes from Applicants' disclosure, and not from the prior art, withdrawal of the rejection is respectfully requested.

Regarding claim 16, although the Office Action asserts Shen discloses the package core is a material selected from the group consisting of ceramics or metals, as set forth above the importation of Eichelberger into Shen, destroys and renders impossible the structures taught by Shen. Because the combination of Eichelberger with Shen does not amount to the limitations of claim 16, withdrawal of the rejection is respectfully requested.

Regarding claim 17, the Office Action states it would have been obvious that a thermally conductive adhesive layer disposed between at least on (sic) die 3 and the heat sink 33, as shown by Shen. The Applicants respectfully disagree. No adhesive layer is taught or suggested between the die 3 and the heat sink 33. Withdrawal of the rejection is respectfully requested.

Conclusion

The Applicants respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney John Greaves at (801) 278-9171 or the below signed attorney to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111

Serial Number: 09/733,289

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Title: Microelectronic Package Having an Integrated Heat Sink and Build-Up Layers

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Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on this 11 day of October, 2002.

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